

## WVTR-W3 Water Vapor Transmission Rate Tester (Gravimetric Method)

WVTR-W3 Water Vapor Transmission Rate Test System, based on the Gravimetric method, provide a wide range and high efficiency water vapor transmission rate testing experience for low, medium and high water vapor barrier materials. It is suitable for the measurement of water vapor transmission rate of various materials such as plastic film, composite film, medical treatment, construction, etc. By testing the water vapor transmission rate, the technical index of the materials could be controlled to meet the requirements for production.



### Product Features

#### Advanced Technology

- Dual test mode: Desiccant method and Water method
  - Equipped with high-precision weighing system, which can improve the system sensitivity and stability
  - A new generation of circular structure test chamber design, making the temperature and humidity distribution more uniform
  - Wide-range, high-precision, automatic temperature and humidity control, meet various test needs
  - Standard air velocity prevents water vapor from condensing on top of test dishes, ensuring a constant humidity difference between the inside and outside of the test dishes
  - Self-developed periodically weighing method and auto zero before each weighing guarantee the accuracy and uniformity of the testing data
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- Convenient fast-access calibration ports for temperature and humidity calibration.
- Reference film or standard weight for fast and accurate calibration
- Precision mechanical design not only ensures the system's ultra-high precision, but also greatly improves the test efficiency.

**High-end Configuration**

- 11.6” tablet with intelligent data processing function for comfort and smooth operation feeling
- Based on the user-friendly Windows operating interface for easy operation
- The test process is recorded automatically, which can realize process data reproduction
- Powerful curve chart analysis function, convenient for comparison test and analysis
- Saves test data in different formats for convenient data transfer
- Powerful functions such as window display, curve overlay analysis, test report customization, original data export, printing, editable with Office software, etc
- Equipped with data traceability, which can realize functions such as multi-level authority management, audit tracking, electronic signatures, etc., which meets the GMP requirements (optional)
- Pubtester also provides professional customization services to meet users' personalized needs in fixtures, software, etc.
- Provide lifetime software free upgrade

**Test Principle**

Based on gravimetric determination method, under a certain test temperature, a constant humidity difference is generated between two sides of the test specimen. The water vapor permeates through the specimen and into the dry side. By measuring the weight changes of the test dish in different time, water vapor transmission rate and other parameters can be obtained.

**Applications**

<b>Basic application</b>	Film	Plastic films, plastic composite films, paper-plastic composite films, coextruded films, aluminum coated films, aluminum foil composite films, glass fiber aluminum foil paper composite films and many other film materials
	Sheeting	PP, PVC and PVDC sheeting, metal foils, rubber pads and other sheeting materials
	Textiles and Non-woven	Textiles and non-woven fabrics such as diaper, sanitation products, etc.
	Paper and Paper Board	Aluminum coated paper for cigarette, paper aluminum plastic composite film and other paper and paper boards
<b>Extended application</b>	Inverted Cup Method	Mount film or sheeting in test dish, cover upper surface of specimen with distilled water, and make the lower side in certain humidity. Generate a constant humidity difference between two sides; water vapor permeates through

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		specimen and measure weight changes in different time to obtain the water vapor transmission rate. NOTE: inverted cups are required
	Artificial Skin	Artificial skin has to meet standard requirements for water vapor transmission rate to ensure better breath performance. This instrument can be used to test water vapor permeability of artificial skin
	Cosmetic	Water vapor permeability of cosmetics
	Aseptic Films	Aseptic wound protecting films, medical plasters and protective clothing materials
	LCD Display	Water vapor transmission rate of LCD display and its relevant sheet
	Solar Back-sheets	Water vapor transmission rate of solar Back-sheets and its relevant sheet
	Paint Film	All types of paint films
	Biodegradable Films	Test water vapor permeability of various sorts of biodegradable films, e.g. starch-based packaging films

### Technical specifications

Specifications	WVTR-W3	
Test Range	0.1 ~ 10,000 g/m <sup>2</sup> ·24h (Water Method)	0.1 ~ 2,500 g/m <sup>2</sup> ·24h (Desiccant Method)
Number of Specimens	1 ~ 3 (Independent testing results)	
Test Accuracy	0.01 g/m <sup>2</sup> ·24h	
Resolution	0.0001 g (Customization)	
Temperature Range	5°C ~ 95°C (Standard)	
Temperature Accuracy	±0.1°C (Standard)	
Humidity Range	10%RH ~ 98%RH (Standard is 90%RH)	
Humidity Accuracy	±1%RH	
Air Velocity	0.5 ~ 2.5 m/s (Customization)	
Specimen Thickness	≤3 mm (Customization)	
Test Area	33 cm <sup>2</sup>	
Specimen Size	Φ74 mm	
Gas Supply	Air	
Gas Supply Pressure	0.6 MPa	
Port Size	Φ6 mm PU tubing	
Power Supply	220VAC 50Hz / 120VAC 60Hz	
Instrument Dimension	560mm (L) × 650mm (W) × 420 mm (H)	
Net Weight	90Kg	

**Note 1:** Refers to the relative humidity on both sides of the film, the humidity in the test chamber is 10%RH-30%RH.

**Note 2:** Refers to the relative humidity on both sides of the film, the humidity in the test chamber is as follows:

Temperature:15°C-40°C, Humidity:10%RH-98%RH

Temperature:45°C, Humidity:10%RH-90%RH

Temperature:50°C, Humidity:10%RH-80%RH

Temperature:55°C, Humidity:10%RH-70%RH

## **Standards**

ASTM E96, ASTM D1653, GB 1037, GB/T 16928, YY/T0471, TAPPI T464, ISO 2528, DIN 53122-1, JIS Z0208, YBB 00092003

## **Configuration**

**Standard configuration:** Instrument, Professional Software, Test Dishes, Desiccant Tube, Automatic Moisture Filter, Standard Weight, Communication Cable, Round Sample Cutter, Valve Set and Reference Film

**Optional configuration:** Air Compressor, Desiccant, GMP software

Note:

1. The gas supply port of the instrument is  $\Phi 6$  mm PU tubing;
  2. Customers will need to prepare for gas supply and distilled water.
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